

GEOMETRY WS

Name ANSWER KEY Period _____

Chapter 7 Review Packet

Show your equations on each problem. Round all answers to the nearest hundredth.

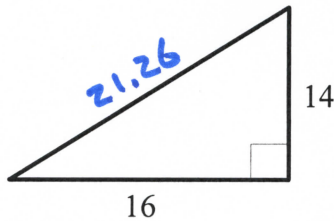
(Target A)

7.1 Pythagorean Theorem: True or False? In any triangle the sum of the squares of the two legs equals the square of the hypotenuse: $a^2 + b^2 = c^2$.

Solve these problems:

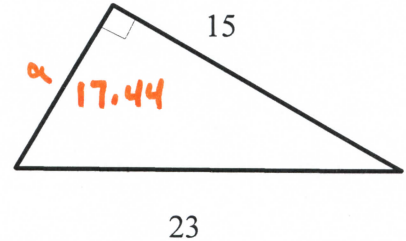
1) Find the hypotenuse:

$$\begin{aligned} 14^2 + 16^2 &= c^2 \\ 196 + 256 &= c^2 \\ 452 &= c^2 \\ 21.26 &= c \end{aligned}$$

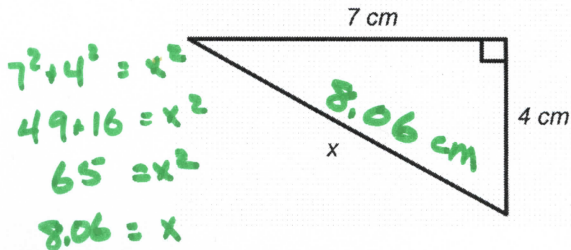


2) Find the leg:

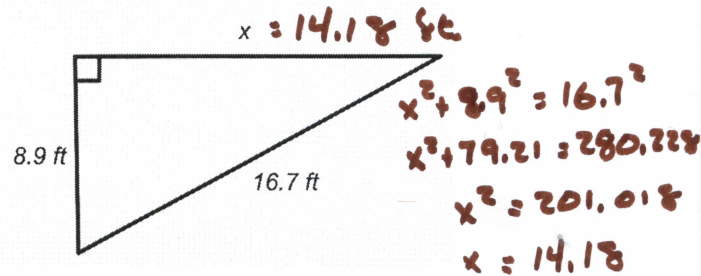
$$\begin{aligned} a^2 + 15^2 &= 23^2 \\ a^2 + 225 &= 529 \\ a^2 &= 304 \\ a &= 17.44 \end{aligned}$$



3) Find the missing side:



4) Find the missing side:



5) What kind of triangle is the triangle with sides 14, 48 and 50? Show your work.

$$\begin{aligned} 14^2 + 48^2 &= 50^2 \\ 196 + 2304 &= 2500 \\ 2500 &= 2500 \end{aligned}$$

IT IS A RIGHT TRIANGLE

6) What kind of triangle is the triangle with sides 19, 21 and 22? Show your work.

$$\begin{aligned} 19^2 + 21^2 &= 22^2 \\ 361 + 441 &= 484 \end{aligned}$$

IT IS AN ACUTE TRIANGLE

(Target B)

7.4 Special Right Triangles

In a $45^\circ - 45^\circ - 90^\circ$ triangle, to find the length of the hypotenuse multiply the leg by $\sqrt{2}$. Both legs

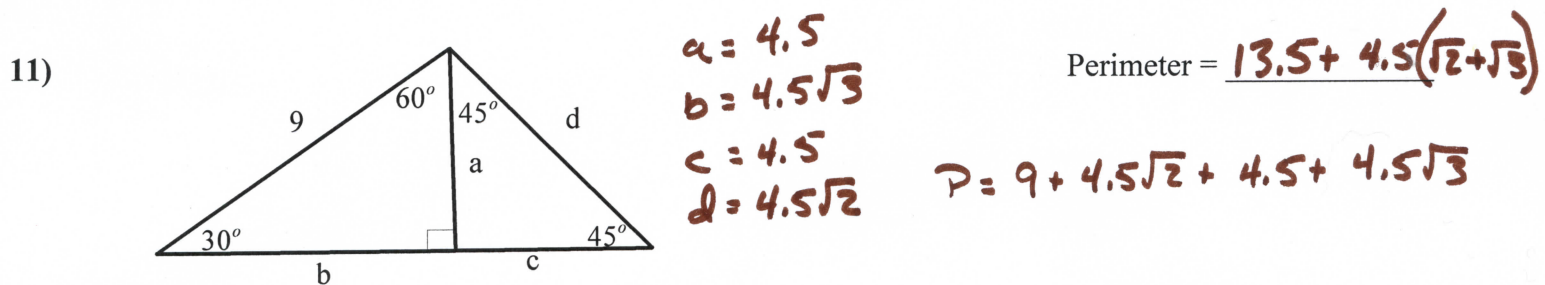
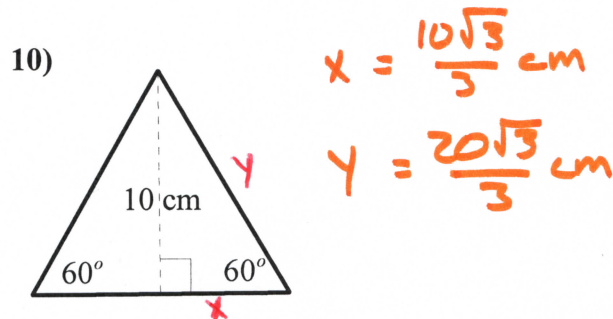
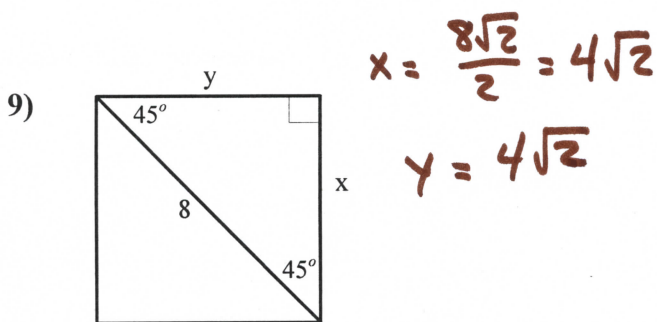
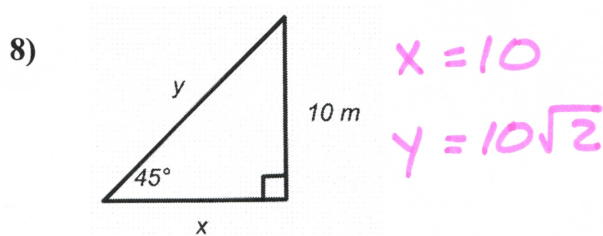
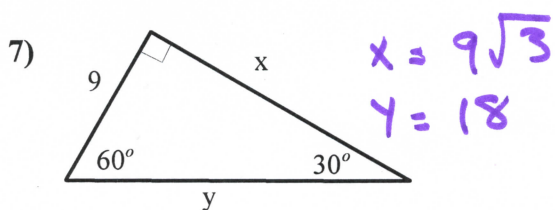
measure the same, because this is an ISOSCELES right triangle.

In a $30^\circ - 60^\circ - 90^\circ$ triangle, to find the length of the hypotenuse multiply the short leg by 2 and to find

the length of the long leg, multiply the short leg by $\sqrt{3}$. The short leg is opposite the 30°

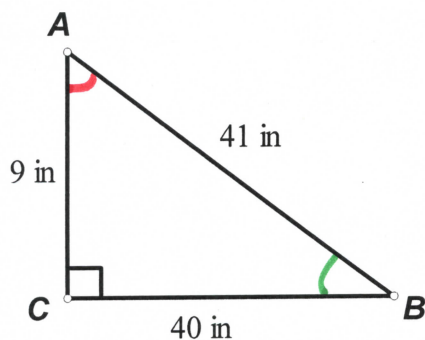
angle and the long leg is opposite the 60° angle.

Solve these problems:



(Target C)

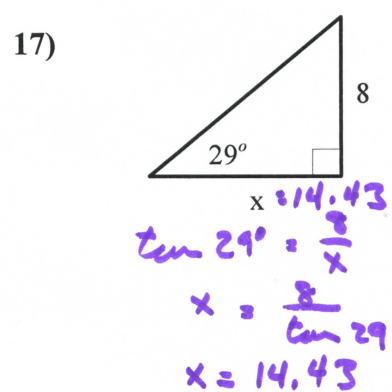
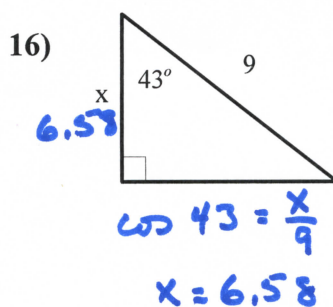
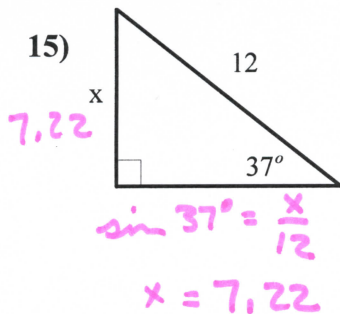
7.5 & 7.6 Trigonometry: Ratios of the sides of right triangles. Do not forget to label opposite, adjacent, and hypotenuse – SOH CAH TOA



12) a. $\sin \angle A = \frac{40}{41}$ b. $\sin \angle B = \frac{9}{41}$
13) a. $\cos \angle A = \frac{9}{41}$ b. $\cos \angle B = \frac{40}{41}$
14) a. $\tan \angle A = \frac{40}{9}$ b. $\tan \angle B = \frac{9}{40}$

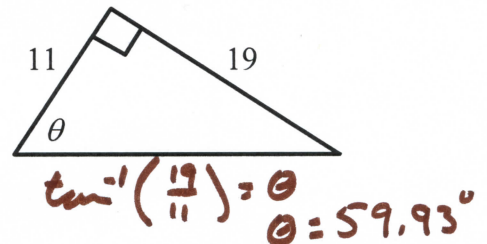
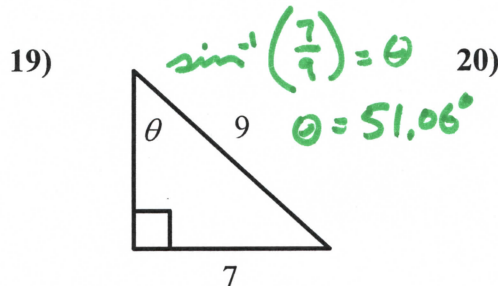
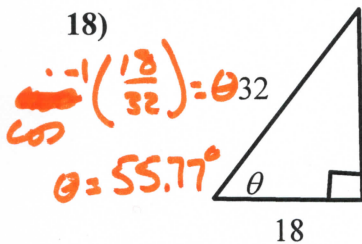
(Target D)

Find the missing side (use $\sin \theta$, $\cos \theta$, and $\tan \theta$)



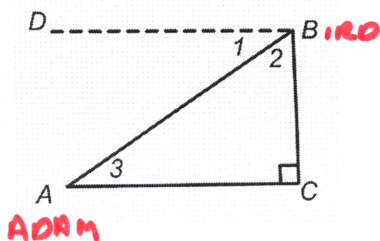
(Target E)

Find the missing angle θ .



Angle of Elevation and Angle of Depression, Word problems

Adam is at point A, looking up at a bird on top of the flagpole \overline{BC} . \overline{AC} and \overline{DB} are both horizontal.



21) Name the angle of elevation from Adam to the bird. $\angle 3$

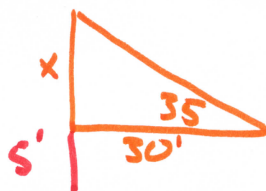
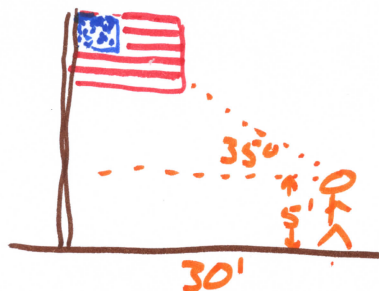
22) Name the angle of depression from the bird to Adam. $\angle 1$

23) How are the angle of depression and the angle of elevation related?

- A. They are complementary.
- B. They are congruent.
- C. They are supplementary.
- D. The angle of elevation is larger.

Why? THEY ARE ALTERNATE INTERIOR ANGLES

- 24) Sarah is standing 30 feet from the flagpole and can see the top of the flagpole at a 35° angle of elevation. If her eyes are 5 feet off the ground, how tall is the flagpole. Be sure to draw a picture and show your work.



$$\tan 35^\circ = \frac{x}{30}$$

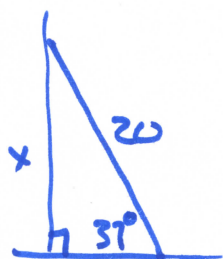
$$30 \cdot \tan 35 = x$$

$$21.4 = x$$

26'

$$\begin{array}{r} 21 \\ + 5 \\ \hline 26 \end{array}$$

- 25) A 20 foot ladder is leaning against a house at a 37° angle with the ground. How high above the ground does the ladder reach? Draw your triangle, and show your work.



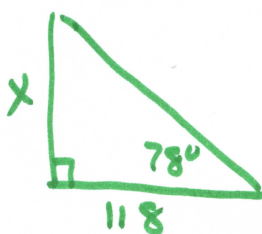
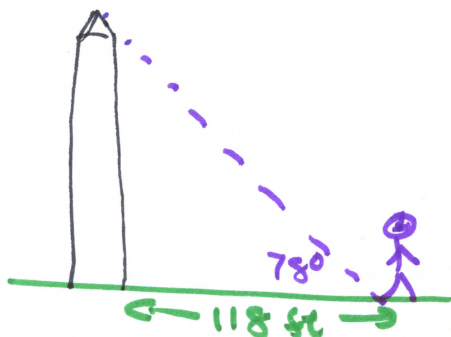
$$\sin 37^\circ = \frac{x}{20}$$

$$20 \sin 37 = x$$

$$12.04 = x$$

12.04 ft

- 26) A surveyor is standing 118 feet from the Washington Monument. The surveyor measures the angle between the ground and the monument to be 78° . How tall is the monument? Show your triangle and your work.



$$\tan 78^\circ = \frac{x}{118}$$

$$118 \cdot \tan 78^\circ = x$$

$$555.15 = x$$

555.15 ft